

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of

Inventor(s): ZEBEDEE

Appln. No. 10/649,861

Filed: August 28, 2003

Title: Hinge



Group Art Unit: Unknown

Examiner: Unknown

Dkt. 95-218

Date: October 9, 2003

**SUBMISSION OF PRIORITY CLAIM AND  
PRIORITY DOCUMENT IN ACCORDANCE  
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Sir:

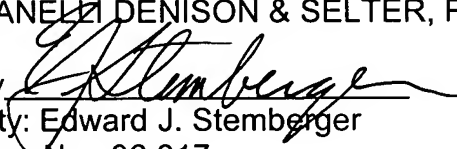
It is respectfully requested that under the provisions of 35 U.S.C. 119/365 this application be given the benefit of the foreign filing date of the following, a certified copy of which is submitted herewith:

<u>Application No.</u>	<u>Country of Origin</u>	<u>Filed</u>
0220320.6	United Kingdom	September 2, 2002

Respectfully submitted,

MANELI DENISON & SELTER, PLLC,

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INVESTOR IN PEOPLE

The Patent Office  
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NP10 8QQ

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Dated 12 September 2003



- 2 SEP 2002



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P01/7700.0.00-0220320.6

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The Patent Office

Cardiff Road  
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NP10 8QQ

1. Your reference P10138GB

2. Patent application number 0220320.6  
(The Patent Office will fill in this part)

3. Full name, address and postcode of the or of each applicant (underline all surnames)  
  
Alan Roger Zebedee  
Forest Lodge  
Walldown Road  
Whitehill, Hants GU35 9AA  
  
 Patents ADP number (if you know it)  
  
 If the applicant is a corporate body, give the country/state of its incorporation 838 476 0001

4. Title of the invention Hinge

5. Name of your agent (if you have one) M.J.P. Deans  
  
 "Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)  
  
M.J.P. Deans  
Lane End House  
Hookley Lane  
Elstead, Surrey GU8 6JE

Patents ADP number (if you know it) 07694029001 ✓ 7694629002

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number	Country	Priority application number (if you know it)	Date of filing (day / month / year)
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7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application	Number of earlier application	Date of filing (day / month / year)
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8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

- a) any applicant named in part 3 is not an inventor, or
- b) there is an inventor who is not named as an applicant, or
- c) any named applicant is a corporate body.

See note (d)) No

## Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form.  
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Continuation sheets of this form

Description

Claim(s)

Abstract

Drawing(s)

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10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

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11.

I/We request the grant of a patent on the basis of this application.

Signature

M.P. Deans

Date

2nd September 2002

12. Name and daytime telephone number of person to contact in the United Kingdom

M.P. Deans — 01252 705148

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HINGE

This invention relates to hinges.

5       The conventional practice for hanging internal doors in a building is to form a rebate in the door frame and in a corresponding side edge of the door for respective hinge plates rotatable relative to each other about an axis defined for the hinge. When correctly positioned, the closed door abuts against respective stop panels fixed to the side jambs of the door frame and to the lintel of the door frame.

10   To do this properly requires a skilled carpenter. Should any adjustment in the positioning of the door in its frame prove necessary, either an additional rebate must be formed or packing inserted. Time is of the essence in modern housebuilding practice. As a result, movement frequently arises as a consequence of the building drying out over a period time and often after initial occupation has taken place. As a

15   consequence, the internal doors of the house may often require adjustment. The nature of the adjustment necessary is not one that would be easy for a householder to carry out himself.

As explained in more detail below, the present invention provides a new

20   form of hinge that includes a provision for adjustment.

In accordance with the present invention, there is provided a hinge comprising two elements, respectively attachable to first and second structures, and hingedly rotatable about an axis relative to each other; one said element comprising

25   a first elongate member extending along the direction of the said axis and having a keyway slot that extends part way along the said member from one end thereof, and a second member adapted for attachment to one of the said structures and integrally formed with a key member receivable in the slot, the keyway slot and the key member being formed with profiles that enable the key member to be received in the

30   slot to a selected one of a plurality of depths, thereby enabling adjustment in the spacing of the said one structure radially of the said axis.

The second element may comprise a second elongate member extending along the direction of the axis and having an opening extending at least part way

along the second elongate member from one end thereof. The first elongate member is suitably formed of two generally cylindrical sections, one of greater diameter than the other, the smaller diameter section being inserted into and rotatable about the said axis within the opening in the second elongate member, and the larger diameter section having the keyway slot formed therein. The land formed where the larger and smaller diameter sections join confronts the one end of the second member, optionally with an intervening washer and/or a spacer enabling adjustment in the position of the one structure relative to the other along the direction of the axis.

10           The confronting surfaces of the land and of the one end of the second member or of a spacer therebetween may be shaped so that the hinge acts as a rising butt.

15           The second element may additionally comprise a threaded member extending radially of the axis and adapted for threaded attachment to the other of the two structures. The threaded member is preferably externally threaded, and the selected depth to which the threaded member is inserted into the other structure enables adjustment of the position of the other structure radially of the said axis. Alternatively, the threaded member may be internally threaded, and the other structure provided with a co-operating externally threaded member, the selected depth to which that externally threaded member is inserted into the internally threaded member providing a similar adjustment.

25           When applied to an internal door fitting within a door frame, the three different adjustments referred to above may respectively provide for horizontal adjustment of the door across the door opening, vertical adjustment of the door within the frame, and horizontal adjustment of the door as a whole into or out of the door frame.

30           The invention is hereinafter more particularly described by way of example only with reference to the accompanying drawings in which:-

Fig. 1 shows a side elevational view of an embodiment of hinge constructed in accordance with the present invention;



Fig. 2 is a sectional view taken along the line II-II in Fig. 1;

5 Fig. 3 is an underneath plan view of the hinge of Figs. 1 and 2 as seen in the direction of the arrow A in Fig. 1;

Figs. 4 and 5 are respectively side and end elevational views of a first elongate member showing a keyway slot therein;

10 Figs. 6 and 7 are respectively side and end elevational views of a hinge plate member adapted to inter-fit with the elongate member of Figs. 4 and 5 to make a first element of the hinge;

15 Figs. 8 and 9 are respectively side and end elevational views of a second element of the hinge; and

Fig. 10 is a generally schematic sectional view through a door mounted by a hinge as shown in Figs. 1 to 9 in a doorway.

20 The embodiment of hinge 1 illustrated in Figs. 1 to 9 of the present drawings comprises, as do all hinges, two elements which are respectively attachable to first and second structures and hingedly rotatable about an axis relative to each other.

25 In the present embodiment, a first of these elements comprises an elongate member 2, best shown in Fig. 4, which in this case comprises two generally cylindrical sections 3 and 4 with a land 5 where the two sections join. The section 3 with the larger diameter is formed with an elongate keyway slot 6, best shown in the sectional view of Fig. 5. Hinge plate 7, shown in Figs. 6 and 7, inter-fits with the elongate member of Figs. 4 and 5 to form the first element of the hinge.

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Hinge plate 7 comprises a plate proper 8 formed with bevelled edges 9 and having counter-sunk through openings 10 for receiving counter-sunk screws to attach plate 8, for example, to a door, as explained in more detail below. Hinge plate 7 is integrally formed with a key member 11, the profile of which corresponds

to the profile of keyway slot 6 so that it may be received therein from open end 12 of slot 6.

Keyway slot 6 and key member 11 are formed with profiles that enable the  
 5 key member 11 to be received in the slot 6 to a selected one of a plurality of depths, as best shown in the sectional view of Fig. 2. This can readily be achieved by providing both the keyway slot and the key member with a repeating profile. By selecting which of the repeats on the key member keys with which of the repeats in the slot will then adjust the depth of the key member in the keyway slot.

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Smaller diameter section 4 of elongate member 2 serves as a hinge pin and is received within opening 13 of cylindrical member 14, which forms the second element of the hinge.

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To enable element 14 to be attached, for example, to a door frame, it is provided with a threaded member 15, which may be a bolt or a wood screw simply attached to the cylindrical member 14, and extending radially from the axis defined by the opening 13.

20

Land 5 confronts end face 16 of cylindrical member 14 when the two elements of the hinge are assembled. In this embodiment both land 5 and surface 16 are shown flat. However, they could be profiled so that the hinge will act as a rising butt. For ease of illustration, the two surfaces 5 and 16 are shown slightly separated in Fig. 1. Because the individual elements of the hinge, including the two members  
 25 which together form the first element of the hinge, lend themselves to being formed as simple die-cast mouldings and so do not have machined surfaces, in practice a thin silicone or nylon washer (not illustrated) is suitably inter-fitted between the surfaces 5 and 16. Alternatively, or additionally, spacers inserted between the surfaces 5 and 16 will have the effect of translating the first element of the hinge  
 30 along the axis of the hinge relative to the second element. Thus, when the hinge is used to hang a door in a doorway, the introduction of spacers will raise the door vertically on its hinge relative to the door frame as explained further with reference to Fig. 10 below.

Although the utility for hinges constructed in accordance with the present invention is not restricted to the hanging of internal doors within a building, this is the scenario in which the invention was developed. It should be understood, however, that in referring herein to first and second structures to be hingedly related to each other by use of the hinge, these structures could be virtually anything. Examples would include a kitchen cabinet and its door, a motor vehicle and its door, an attaché case and its lid, and so on.

Referring to Fig. 10, which shows generally schematically how an embodiment of hinge as described in detail above may be used to hang a door and, in particular, explains the various adjustments inherent in the construction of the hinge:

An opening 17 in a wall 18 is lined by a door frame 19 including generally vertical jambs 20 with a lintel (not shown) over the top. The position of the door is marked by generally vertically mounted door stops 21 against which the door 22 closes. The door is hingedly mounted to one of the jambs, in this case that at the right of the drawing and vertically mounted mouldings 23 cover the join between the door jamb 19 and the wall 18. As shown in this view, one of a pair of hinges 1 as described more particularly hereinabove is shown mounting the door to the door frame. To achieve this, hinge plate 7 is fixed by means of screws 24 to side edge 25 of the door 22 and its key member is then guided into the keyway slot 6 (not shown in this Figure) of elongate member 2. The fit between the key member and the keyway slot should suitably be sufficiently tight that after insertion of the key member into the keyway slot, elongate member 2 does not simply fall away from the hinge plate member 7. Separately, threaded member 15 of cylindrical member 14 is screwed into side edge 26 of door jamb 20. This operation is then repeated for the second hinge. The door can then simply be mounted in position by lowering the respective pins 4 (not shown in this Figure) into openings 13 (also not shown in this Figure).

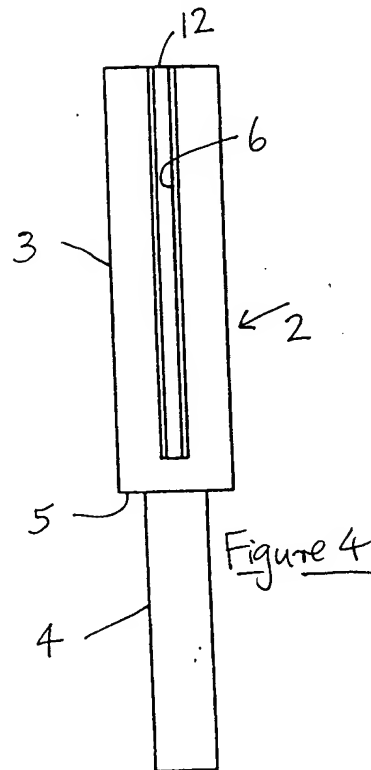
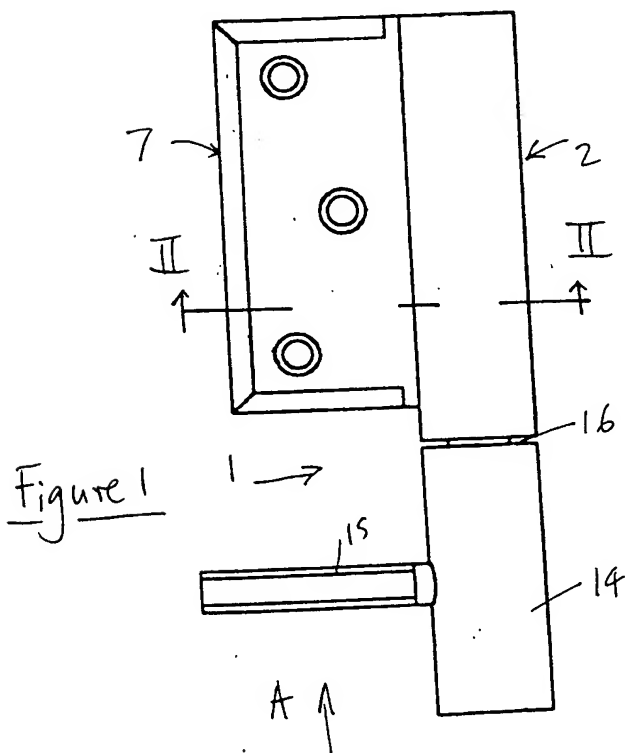
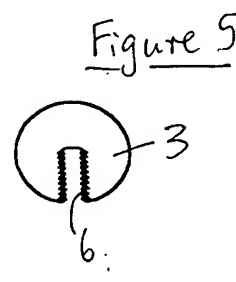
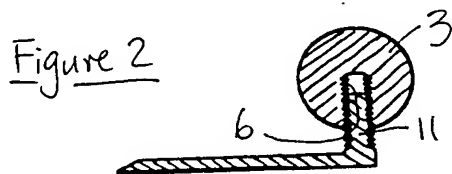
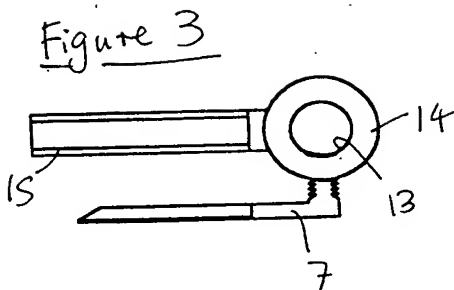
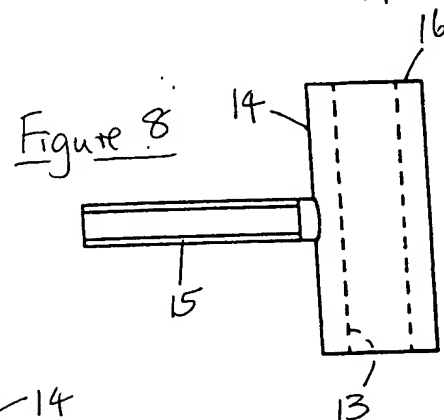
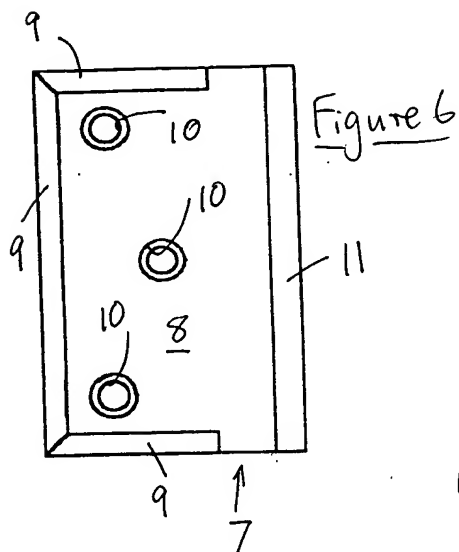
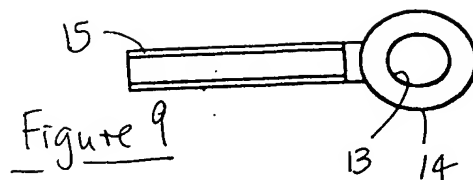
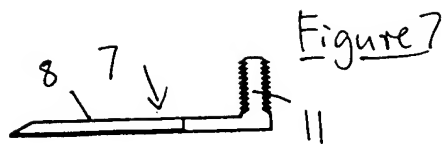
The vertical position of the door can readily be adjusted by inserting or removing spacers between elongate member 2 and cylindrical member 14. Adjustment in the position of the door width-wise across the doorway opening 17 in

the direction of arrows B in Fig. 10 can be readily achieved by selecting the depth to which the key members are inserted into the keyway slots. Similarly, adjustment in the position of the door into or out of the door frame in the direction of arrows C in Fig. 10 is readily achieved by adjusting the extent to which threaded member 15 is inserted into door jamb 20. Thus, the positioning of the door in all three relevant directions is readily adjustable by means of adjusting the hinge alone. There is no need to make any rebates in mounting the hinge and therefore no need to adjust the positioning of the rebate or its depth in order to adjust the way in which the door is hung in the frame. Accordingly, as shrinkage or drying out occurs following the initial construction of a building or after the initial mounting of the door, the correct positioning of the door for operation within the doorway can readily be adjusted by the householder himself simply by making whichever of the necessary adjustments are required, as described above. No tools are actually needed to carry out the adjustments.

15

The individual elements of the hinge lend themselves to simple die-cast moulding manufacturing techniques so that the hinge is relatively inexpensive to manufacture. Those parts that are visible in use (the outer surface of the larger diameter portion 3 of elongate member 2, the outer surface of cylindrical member 14 and the bevel edge side of hinge plate 7) may be given a decorative finish, for example a brass finish. Because key member 11 of hinge plate 7 can be fitted into the keyway slot either way up, a single set of parts consisting of the hinge plate 7, cylindrical member 14 and elongate member 2 can be sold for both left hand and right hand use.

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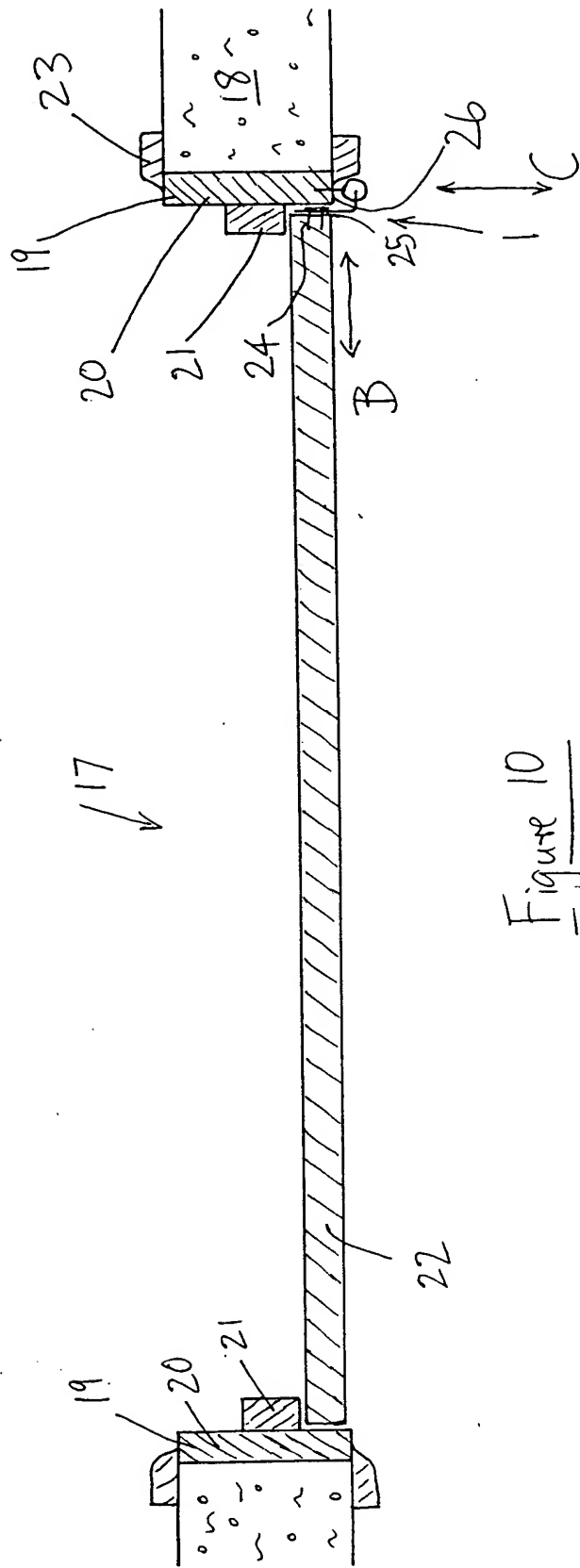


Figure 10

